

Work Order ID 72500

Wednesday, July 27, 2011 9:09:59 AM



U/R

Page 1

Item ID: D350-748-101

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Installation, High Fwd

Start Date: 7/27/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/16/2011 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan:

Date: 11-07-27

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr

Revision Nbr

D350-748-141

F

U/R

0.00

100



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile & type labels per PPPD350-748-101 CHG002

SCRAP

Scrap

0.00

110



BENDING MACHINE - CROSSTUBES

CNC Bend 1

Memo

0.00

CNC Delta 100 Bender

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT

DP

11-8-4

0.00

120



QC15- Crosstube Dimensional Check

QC

Memo

0.00

Quality Control

Subs

Pro ->

Dart Aerospace Ltd

W/O: 72500		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D350-748-101 PAR #: Fault Category: x-tube NCR ☒ Yes ☐ No DQA: ck Date: 11/09/21
 11.855 Resolution: use as is Disposition: use as is QA: N/C Closed: ck Date: 11/09/21

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11.08.05	110	tube is bent out of tol. R.L. Process	 11.08.05 DS042	Accurate per David's email Attached	 11/09/21	 11.08.05 DS042	 11.08.05 DS042	 11.08.05 DS042

NOTE: Date & initial all entries

Work Order ID 72500



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Start Date: 7/27/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/16/2011 Req'd Qty: 1.00

Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
125 HandFXTube		0.00							
Hand Finishing Crosstubes	Memo ***Stress relief*** Heat treat crosstube as per QSI010 4.3 Temp: <u>375</u> Start time: <u>4h30</u> Finish time: <u>8h30</u>	0.00				(1)			
127 QC	QC6- Inspect dimensions to drawing	0.00							
Quality Control	Memo	0.00							(tl)

SAD 11-08-05

8 sub-lus

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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NOTE: Date & initial all entries

Work Order ID 72500

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Required Date: 8/16/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130 	Crosstubes	0.00							
Crosstubes	Memo	0.00							
Crosstubes	1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs, Set-up drill table as per QSI 010								
	2-Deburr								
	3-Engrave Part # and Batch # as per Dwg D350-748-141								
	4-Remove all marks from tube within limits of D350-748-141								
	5- Apply a light coat of LPS3 on the interior of tube Batch: <u>M109956</u>								
140 	QC5- Inspect part completeness to step on W/O	0.00							
QC	Memo	0.00							
Quality Control	CHECK 10 DEG HOLES WITH DT8876E (EUROCOPTER CLAMP)								

SAO

11-8-8

TW 11-08-09

SAO 11-08-10

Sulaco

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Dart Aerospace Ltd

W/O: 72502		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

x-tube

Part No: D38-748-101 PAR #: _____ Fault Category: Landing Gear / Degrad. NCR: Yes No DQA: ck Date: 11/09/21
11-854 Resolution: SCRAP Disposition: SCRAP QA: N/C Closed Date: 11/09/21

NCR:		WORK ORDER NON-CONFORMANCE (NCR) \$ 3056.04						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
11/09/21	150	tube Arrived at CAD plating cracks R.L. Press (cracked by us)	<u>all</u> 11/09/21 251042	crack is located about in between 12-13 inches from cut Scrap + Destroy	<u>all</u> 11-9-21	<u>all</u> 11/09/21	<u>all</u> 11/09/21 251042	<u>S</u> 11/09/21

NOTE: Date & initial all entries

Work Order ID 72500

Wednesday, July 27, 2011 9:09:59 AM

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Item ID: D350-748-101

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Item Name: Crosstube Installation, High Fwd

Start Date: 7/27/2011 Start Qty: 1.00

Required Date: 8/16/2011 Req'd Qty: 1.00

Cust Item ID:

Customer:




Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180  SprayPaint Spray Painting	SprayPaint Memo 1-Prime inside crosstube as per QSI 005 4.2 2-Prime Outside of Tube as per Dart QSI 005 4.2	0.00 0.00							
190  QC Quality Control	QC14- Inspect Spray Paint Memo Then, Wrap in plastic bag to protect from scratches	0.00 0.00							
200  Crosstubes Crosstubes	Crosstubes Memo 1-Install Ground wire Insert, then insert screw and washer 2-Install Abraison strips as per Dwg D350-748-141 & QSI 035. 3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN- LBS	0.00 0.00							

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR: Yes No** **DQA:** _____ **Date:** _____
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

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Cust Item ID:

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start




QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
210  QC Quality Control	QC5- Inspect part completeness to step on W/O Memo	0.00 0.00							
220  Packaging Packaging	Pick Kit Memo	0.00 0.00							
230  QC Quality Control	QC4- 100% Inspect kits for completeness Memo	0.00 0.00							

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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Start Date: 7/27/2011 Start Qty: 1.00



Cust Item ID:

Required Date: 8/16/2011 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start



QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

0.00



Packaging

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D350-748-101

Location: _____

PPP Rev: _____

250

0.00



QC

QC21- Final Inspection - Work Order Release

Memo

0.00

Quality Control

U 11.81/20

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

Picklist Print

Page 1

Wednesday, July 27, 2011 9:10:04 AM

Work Order ID: 72500

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd









Start Date: 7/27/2011

Required Date: 8/16/2011

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 06-07-05 JLM
 IPP Rev:B Update qty of MS21042L5 06-09-12 KJ
 IPP Rev:C Rev B 07-11-15 DD
 IPP Rev D Combined manufacturing 08.04.02 EC verified by: DD
 IPP Rev:E 08-06-24 revD as per dwg DD verified by:EC IPP Rev:F
 10.08.04 added QSI010 4.3 DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status															
D350-748-141TRN 		Manufactured	No			110	Each	0.0000	1	1																		
<div>68818</div> <div>68818</div> <div>SAD11-08-04</div>																												
Crosstube Turning Detail																												
ALS4-1032-225 		Purchased	No			200	Each	931.0000	1	1																		
<div></div>																												
Insert																												
<table><tr><th>Location</th><th>Loc Qty</th><th>Loc Code</th></tr><tr><td>ST282</td><td>931</td><td></td></tr><tr><td>110768</td><td>62</td><td></td></tr><tr><td>117717</td><td>9</td><td></td></tr><tr><td>118386</td><td>860</td><td></td></tr></table>														Location	Loc Qty	Loc Code	ST282	931		110768	62		117717	9		118386	860	
Location	Loc Qty	Loc Code																										
ST282	931																											
110768	62																											
117717	9																											
118386	860																											
AN960JD10 	NAS1149D0363J	Purchased	No			200	Each	0.0000	1	1																		
<div></div>																												
Washer																												
D2856-400 		Manufactured	No			200	f	290.3845	1.181	1.243158																		
<div></div>																												

Abraison Strip

Location	Loc Qty	Loc Code
ST403	73.7149	
68076	73.7149	
ST409	216.6696	
63735	0.6696	
71164	216	

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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NOTE: Date & initial all entries

Picklist Print

Wednesday, July 27, 2011 9:10:04 AM

Work Order ID: 72500

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 7/27/2011

Required Date: 8/16/2011

Start Qty: 1.00

Required Qty: 1.00

D3502-1

Manufactured

No

200

Each

25.0000

2

2



Support

Location

Loc Qty

Loc Code

ST063

25

61206

12

61843

3

64004

10

MS21920-20

Purchased

No

200

Each

80.0000

2

2



Clamp (per MIL-DTL-8783C)

Location

Loc Qty

Loc Code

LG050

80

116799

10

117279

28

118236

42

MS27039-1-10

Purchased

No

200

Each

155.0000

1

1



Screw

Location

Loc Qty

Loc Code

ST290

150

117441

150

ST291

5

115935

5

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR: Yes No** **DQA:** _____ **Date:** _____
Resolution: _____ **Disposition:** _____ **QA: N/C Closed:** _____ **Date:** _____

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Work Order ID: 72500

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 7/27/2011

Required Date: 8/16/2011

Start Qty: 1.00

Required Qty: 1.00

AN4-41A Purchased No 220 Each 299.0000 8 8



Bolt

Location Loc Qty Loc Code

ST360	299	
115108	74	
115705	50	
116191	50	
117619	50	
117795	25	
118451	50	

AN4-6A Purchased No 220 Each 918.0000 16 16



Bolt

Location Loc Qty Loc Code

ST356	718	
116924	218	
117872	200	
118422	300	
ST358	200	
117514	200	

AN5-32A Purchased No 220 Each 228.0000 4 4



Bolt

Location Loc Qty Loc Code

ST340	228	
117161	2	
117514	50	
117688	16	
117872	60	
118191	50	
118422	50	

Dart Aerospace Ltd

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Parent Item Name: Crosstube Installation, High Fwd

Start Date: 7/27/2011

Required Date: 8/16/2011

Start Qty: 1.00

Required Qty: 1.00

AN960JD416 NAS1149D0463J Purchased No 220 Each 0.0000 32 32



Washer

AN960JD516 NAS1149D0563J Purchased No 220 Each 0.0000 8 8



Washer

D3500-1 Manufactured No 220 Each 32.0000 4 4



Saddle

Location

Loc Qty

Loc Code

ST424

9

66127

9

ST424/25

20

62207

20

ST425

3

61838

3

D3501-1 Manufactured No 220 Each 321.0000 16 16



Bushing

Location

Loc Qty

Loc Code

ST063

221

61984

19

68939

102

70682

100

ST066

100

67757

100

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ **PAR #:** _____ **Fault Category:** _____ **NCR:** Yes No **DQA:** _____ **Date:** _____
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Parent Item: D350-748-101



Parent Item Name: Crosstube Installation, High Fwd

Start Date: 7/27/2011

Required Date: 8/16/2011

Start Qty: 1.00

Required Qty: 1.00

MS21042L4

Purchased

No

220

Each

5,459.000

24

24



Nut

Location

Loc Qty

Loc Code

ST300

5459

117441

1308

117601

651

117885

1500

118451

2000

MS21042L5

Purchased

No

220

Each

1,300.000

4

4



Nut

Location

Loc Qty

Loc Code

ST300

1300

116105

5

116548

111

117441

498

117591

100

117611

90

118179

496

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

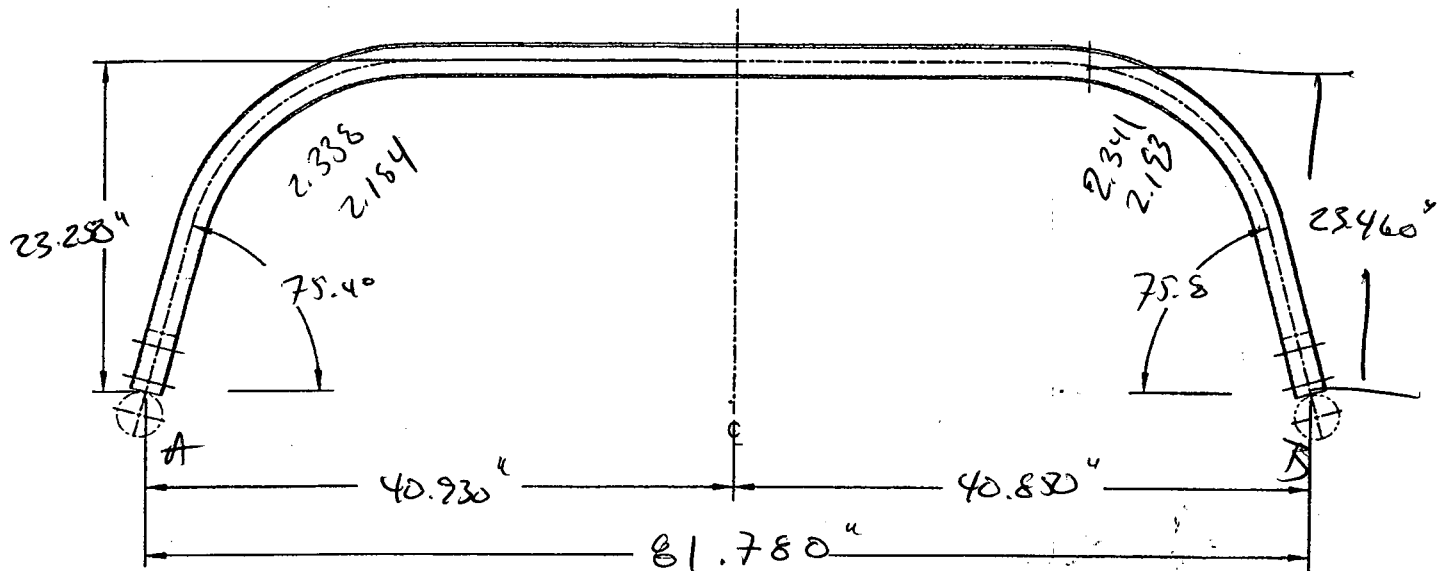
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	72800
Description: Crosstube High Fwd (AS350/355)		Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: E		Page 1 of 1	

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments
Twist = 0.375"
Side A = 3.4% crushing @ 40 Passes
Side B = 3.2% crushing @ 37 Passes
See Attached Email

Acceptable
 11.08.08

QC15 Inspection	8
Date	11/08/08

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	

11.08.23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

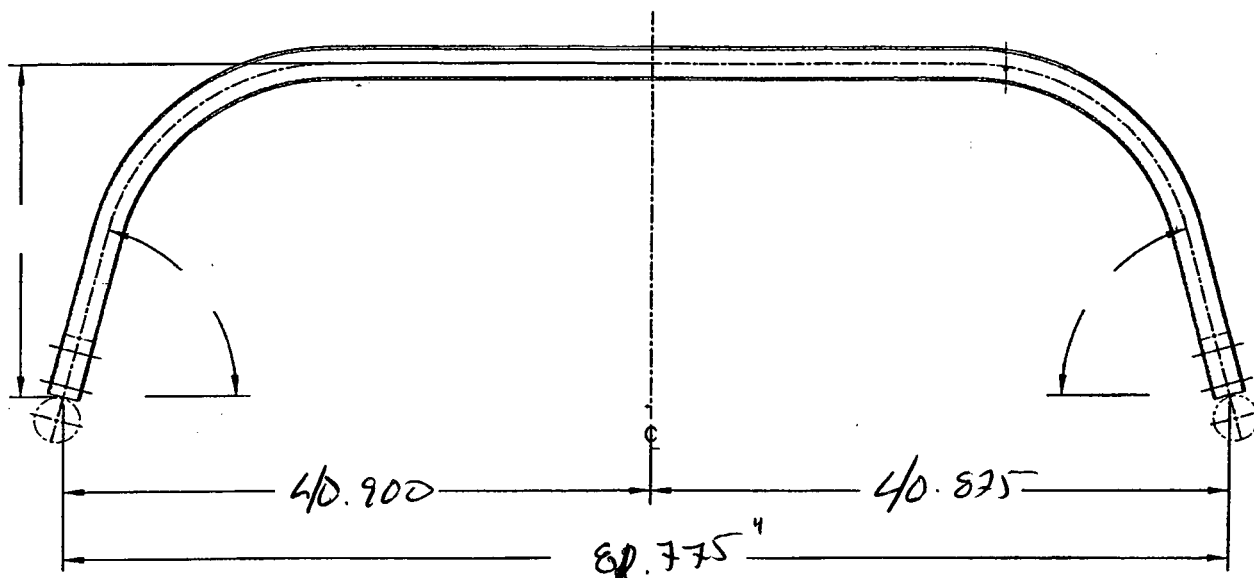
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order:	B72200
Description: Crosstube High Fwd (AS350/355)		Part Number:	D350-748-101
Inspection Dwg: D350-748-141 Rev: E		Page 1 of 1	

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments
twist = 0.414

QC15 Inspection	<i>[Signature]</i>
Date	6/12/08

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	<i>[Signature]</i>

11.11 = 11.11

11.11

11

11.11

Item	Qty -141	Part Number	Description
1	X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
2	1	D6015-125	CROSSTUBE (OR D6017-115)
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6017-115
FINISHED LENGTH = 110.270±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-141" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 30.45 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING. ACCEPTABLE TO VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 15) MAX TWIST AFTER BENDING: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.25 (ZN C1-3).

UNDER REVIEW

11.07.12

RELEASED
2011-01-18

REV.	DESCRIPTION	BY	DATE
F	ADD HRC TEST OPTION (B8-1) PER PAR 09-040, ADD TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION (C8-1), STOCK DIM NOW MACHINED (D1-4)	CP	10.11.23
E	REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); TOLERANCES (ZN C6-3, D1-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6017-115 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	
MFG. APPR.		D350-748-141	
APPROVED		REV. F	
DE APPR.		SHEET 1 OF 4	
DATE		TITLE	
10.11.23		CROSSTUBE (AS 350/355 HI FWD)	
		SCALE	
		NTS	

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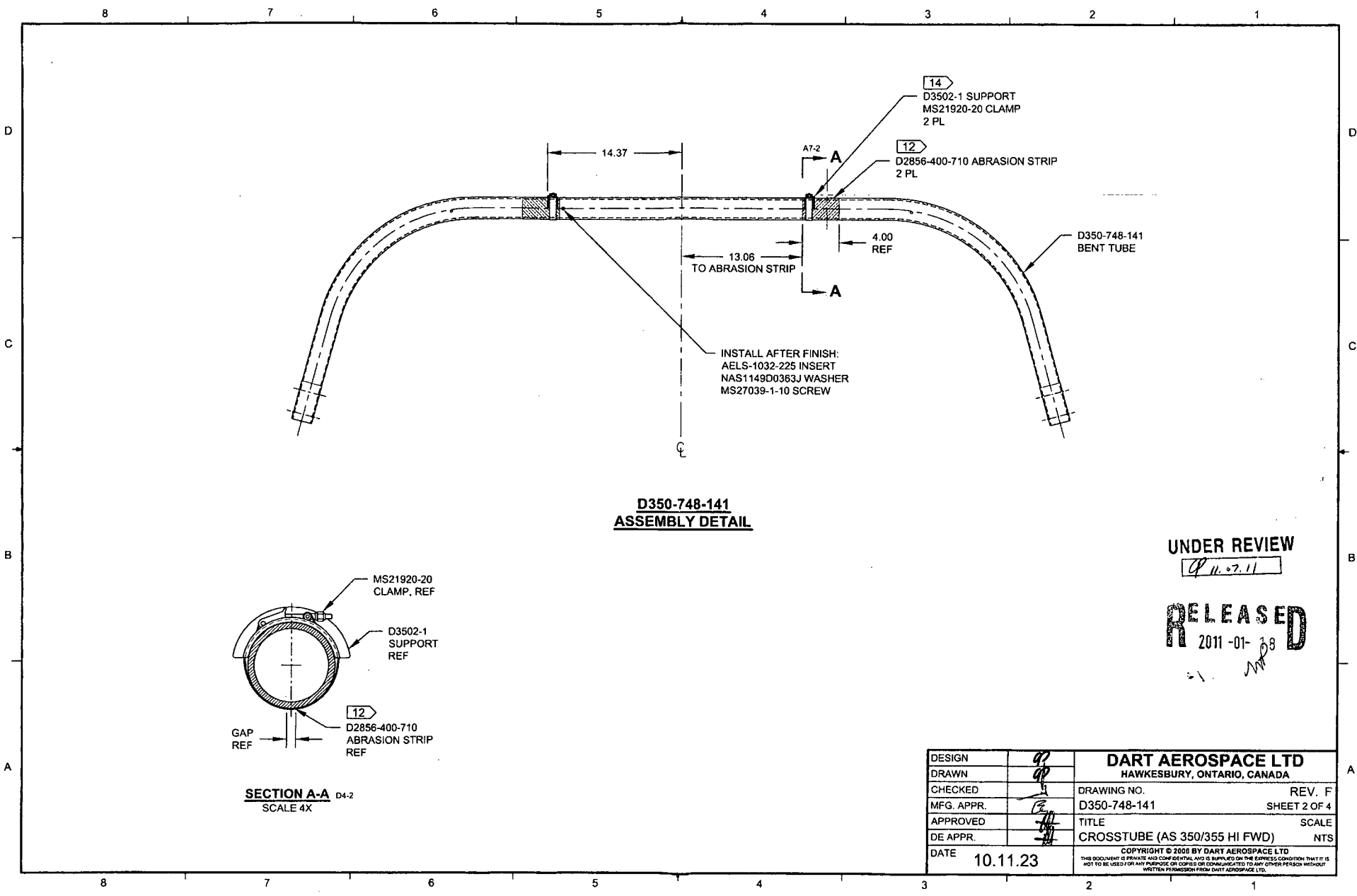
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			







NOTE: Date & initial all entries



**D350-748-141
ASSEMBLY DETAIL**

UNDER REVIEW
11.07.11

RELEASED
2011-01-38

DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D350-748-141	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (AS 350/355 HI FWD)	NTS
DATE	10.11.23	COPYRIGHT © 2008 BY DART AEROSPACE LTD	
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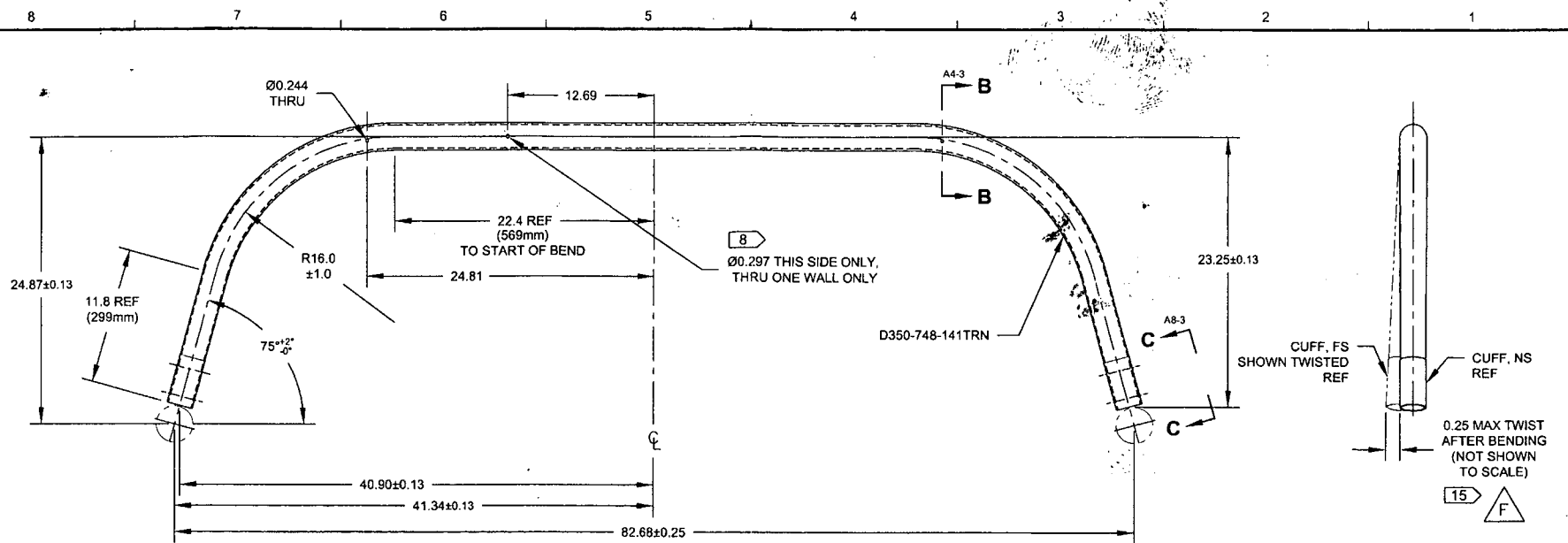
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

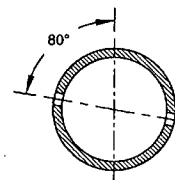
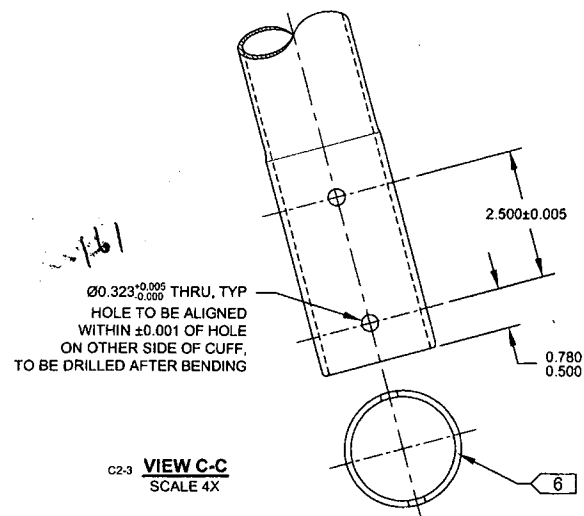
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D350-748-141
BENDING AND DRILLING DETAIL 10



SECTION B-B D3-3
 SCALE 4X

UNDER REVIEW
 11.27.12

RELEASED
 2011-01-18

DESIGN	QP	DART AEROSPACE LTD	
DRAWN	QP	HAWKESBURY, ONTARIO, CANADA	
CHECKED	h	DRAWING NO. D350-748-141	REV. F
MFG. APPR.	h		SHEET 3 OF 4
APPROVED	h	TITLE CROSSTUBE (AS 350/355 HI FWD)	SCALE NTS
DE APPR.	h		
DATE	10.11.23	COPYRIGHT © 2006 BY DART AEROSPACE LTD <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

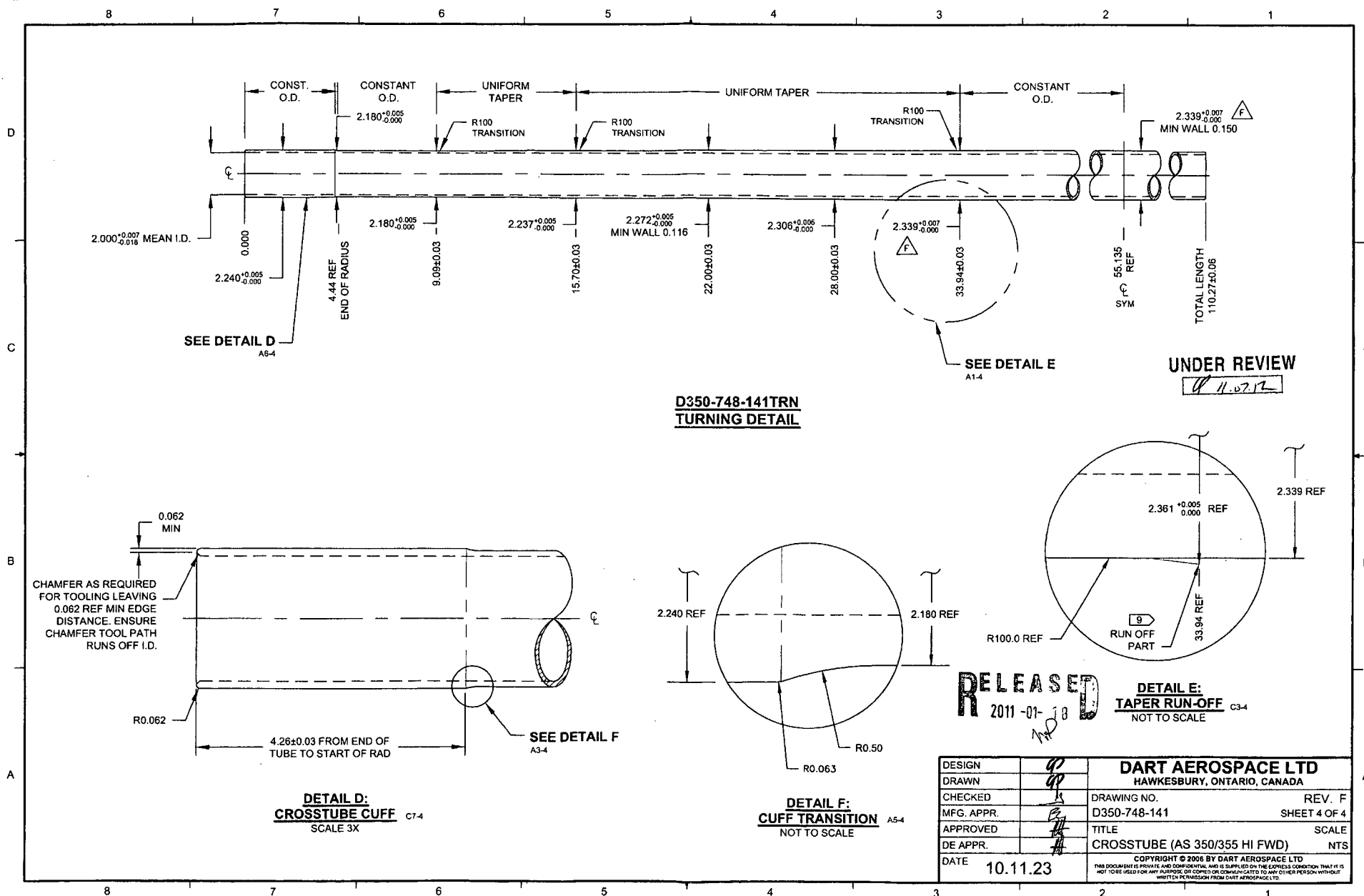
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Eric Downing

From: David Shepherd <dshepherd@dartaero.com>
Sent: August 4, 2011 6:39 PM
To: 'Eric Downing'
Cc: 'Bill Beckett'; 'Linda Lacelle'; 'Chris Provencal'
Subject: RE: D350-748-141 out of tol

Eric,

B72500 is (barely) acceptable.

B72499 is badly twisted, it is overheight, too narrow, angles too steep ... Essentially, all dimensions are off ... If we try to trim it to fix it, it will become even narrower, so I think we need to scrap it.

With respect to the twisting, this seems to be way out of whack again ... I remember working with Dan Paquette to bend a 350 tube after we had the severe twisting issues and we made it perfectly level ... Is he still using buggies because last time I saw him bending a 412 aft, there were no buggies involved.

David

From: Eric Downing [mailto:edowning@dartaero.com]
Sent: August-04-11 12:33 PM
To: 'David Shepherd'
Cc: Bill Beckett; Linda Lacelle; Chris Provencal
Subject: D350-748-141 out of tol

Hello David

I have two more tubes that are bent out of tolerance that need your approval. I have attached the dim sheet as I did yesterday. 1 tube has a twist of 0.496" and the heights are high and the span is narrow. The other has the twist measuring 0.375" and has one side bent 0.200" higher.

Thanks David

Eric Downing
QC COORDINATOR
DART AEROSPACE
EDOWNING@DARTAERO.COM

CADORATH GROUP NON CONFORMANCE REPORT

CADORATH AEROSPACE ☐

CADORATH DISTRIBUTION ☐

CADORATH COATING ☒

UNIFLYTE ☐

NOTE: THIS FORM MUST BE COMPLETED BY: CUSTOMER ☒ VENDOR ☐ BEFORE PROCESSING OF PART(S)

NCR#: **C1105**

DATE: **08/29/11**

CUSTOMER: ☒ **Dart Aerospace Ltd.**

VENDOR: ☐ **N/A**

PART DESCRIPTION: **Skid (Crosstube)**

CUSTOMER P/O #: **PO 14653**

PART #: **d350-748-101**

SERIAL #: **B72500 and B72501** QUANTITY: **TWO (2)**

PURCHASE ORDER INSTRUCTIONS: **Cadmium Plate**

DISCREPANCY: **These parts failed our MPI test. They were found cracked in the same area as the last time. We have stopped processing the parts and would like to send them back for your evaluation.**

Nick Wasylik (QA Manager)

CADORATH/UNIFLYTE INSPECTION DEPARTMENT

CUSTOMER: ☐

VENDOR: ☐

PLEASE COMPLETE THIS PORTION, SIGN AND RETURN TOP COPY OF THIS FORM TO CADORATH/UNIFLYTE

DATE: **08/29/11** P/O: **PO 14653**

CUSTOMER INSTRUCTIONS: ☐

VENDOR CORRECTIVE ACTION: ☐

ATTENTION: Chantal Lavoie

As per Don Schwartz's email to you, we will return these parts for your evaluation.

AUTHORIZED SIGNATURE

NAME AND TITLE

DATE: 10/13/10

FORM: OPS 097
REVISION: 3